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students the pure mathematical ideas, and let the professors of physics, mechanics, etc., do the applying of the principles." Much better would it be to give the non-engineering student work in the broader applications of the mathematical theory, for the engineer is sure to get this work, and the other students will have no other chance.

Finally, in a course in analytic geometry for engineers, we would urge again the general use of the parametric form of the equation. It has a wide application and is of common use in their profession, as, for example, in the case of the moving point whose coordidates are functions of the time. Polar coordinates, also, are almost as familiar to the engineer in much of his work as rectangular, and should receive careful attention in the course in analytic geometry, both before and after the application of the theory of calculus.

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DEPARTMENTS.

SOLUTIONS OF PROBLEMS.

ALGEBRA.

323. Proposed by E. B. ESCOTT, Ann Arbor, Mich.

Show that the relation $(a^2+b^2+c^2)(b^2+c^2+d^2)=(ab+bc+cd)^2$ can hold for real numbers only when they are in proportion.

Solution by the PROPOSER.

Expanding and rearranging, we get

$$a^2(c^2+d^2)-2abc(b+d)+b^4+b^2c^2-2bc^2d+b^2d^2+c^4=0.$$

Solving for a,

$$a=\frac{bc(b+d)\pm(c^2-bd)\sqrt{[-(b^2+c^2+d^2)]}}{c^2+d^2}$$

which can be real only when $c^2-bd=0$, *i. e.* when $c/d=b/c$. Then

$$a=\frac{bc\ (b+d)}{c^2+d^2}=\frac{bc\ (b+d)}{bd+d^2}=\frac{bc}{d},$$

since $b+d\neq0$. Therefore, $a=\frac{bc}{d}$ or $\frac{a}{b}=\frac{c}{d}=\frac{b}{c}$.

Also solved by G. B. M. Zerr.